providing a layer of a plurality of ceramic filter units, each of the ceramic filter units including a body, a central opening extending through the body, and at least three openings also extending through the body and positioned between the central opening and an outer periphery of the body so that a combination of the central opening and the at least three openings define a plurality of fluid flow passageways extending through each of the plurality of ceramic filter units;

contacting an organic-based feed stream with the layer of the plurality of ceramic filter units; and

subdividing the organic-based feed stream into a plurality of smaller fluid streams by passing the organic-based feed stream through the plurality of fluid flow passageways prior to the organic-based feed stream contacting a catalyst bed in the chemical reactor.

REMARKS

Applicant wishes to thank the Examiner for courtesies extended during the telephonic conference between Examiner and Applicant's attorneys.

Claims 46 – 58 have been cancelled and new claims 59 – 78 have been added. Reconsideration of this application is respectfully requested.

35 U.S.C. §112, First Paragraph Rejection

Claims 46 – 48 and 51 – 58 were rejected under the provisions of 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. These claims have been cancelled and replaced with new claims as described herein.

As a result of the telephonic interview, the Examiner acknowledged that claims where the ceramic units have a central opening and the at least three openings positioned between the outer periphery and the central opening define over the Hung patent document. Accordingly,

Applicant agreed to and submits herewith these features being included in the proposed new claims. The Hung patent document (page and line numbers refer to the English language translation) "concerns hydroprocessing or hydrotreatment catalyzers which... comprise extrudates with a cross-section that is oval and has two holes therein." (p.2, ll. 1-4). The catalyzers have openings therein "which are circular or oval" (p. 9, ll. 6-7), with "oval" being defined as shapes with two areas of relatively great curvature separated by two areas with relatively less curvature should also be comprised therein." (p. 8, ll. 15, 16-18).

The Examiner also acknowledged Applicant's position on the *Purdue Pharma* case [*Purdue Pharma L.P. v. Faulding, Inc.*, 56 U.S.P.Q.2d 1481 (CA FC 2000)] and asked for further explanation in the written response. The Examiner indicated that if Applicant could further distinguish the present case from the *Purdue Pharma* case, Examiner would withdraw his rejections based upon § 112, first paragraph.

As an initial matter, Applicant respectfully submits that support for the amended independent claims can be found in the specification, including the drawings, and no new matter has been added. Applicant can show possession of an invention by disclosure of drawings that are sufficiently detailed to show that application was in possession of the claimed invention as a whole. MPEP § 2163. "[D]rawings alone may provide a 'written description' of an invention as required by Sec. 112," *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1565, 19 USPQ2d 1111, 1118 (Fed. Cir. 1991).

Examiner suggested that the present case is analogous to the facts of the *Purdue Pharma* case, which held that the amended claims were invalid under § 112. Upon further examination of this case, the present case is quite factually distinguishable from *Purdue Pharma*, making this case inapplicable to the present situation.

Applicant notes that the cases relied upon by Examiner are all considered to be in the unpredictable arts, while the present invention is considered to be within the predictable arts. In unpredictable arts, such as chemistry or biology, a heightened enablement disclosure is required, such as in *Purdue Pharma*. Mechanical arts are considered predictable due to permissible

reliance upon established scientific and mathematical laws. Other areas, such as biological arts, are considered unpredictable because scientists are unable to precisely predict how simple changes in temperature, pressure, and pH will affect biological processes. See *In re Fisher*, 427 F.2d 833, 839 (C.C.P.A. 1969). This is not so with the present case. Applicant's ceramic filter units are a mechanical structure toward which the Examiner expresses his concern. As such, one skilled in this technology more readily understands various species and description related to this portion of the claimed invention.

In *Purdue Pharma*, the claims were directed to methods of treating pain in patients by administering a time-released drug once a day. During prosecution of the Purdue patent, all of the originally submitted claims were cancelled and all new claims were added and subsequently allowed. The primary issue in Purdue was whether a limitation within claim 1 was adequately described in the disclosure of the patent application as originally filed. The limitation at issue in Purdue was if a ratio of a maximum plasma concentration (Cmax) / a plasma level of the drug at about 24 hours after administration of the drug (C24) was greater than 2.

In chemical and other unpredictable art cases, examples are provided many times to illustrate that a combination of variables provides a certain result. Examples are rarely used in mechanical cases. Mechanical cases rely heavily on drawings, which are required to show every claimed feature. 37 C.F.R. § 1.83. Examples are generally only required when the specification does not provide an enabling disclosure.

The portion of the opinion relied upon by the Examiner concerns the examples provided within the Purdue application. If the examples in Purdue had specifically indicated that a Cmax/C24 ratio of over two was a feature of the present invention, it is likely that the court would have found that the examples were enabling. The Purdue examples were defective in providing support for the Cmax/C24 ratio since the examples did not contain the Cmax/C24 ratio at all. Seven examples were provided in Purdue within the specification. Values for Cmax and C24 were only provided for the first three examples, but not the ratio. The Cmax/C24 ratio was not provided for any of the examples, it had to be calculated from the "multitude of pharmacokinetic parameters". Purdue only pointed to two of the examples as even having a

Cmax/C24 ratio of greater than 2.0. Several of the other examples had a Cmax/C24 ratio of less than 2.0. The court found that nothing in the specification indicated to the skilled artisan which of the examples embodied the claimed invention and which did not. See *Purdue Pharma* generally.

Our situation is clearly different. Each and every figure shown illustrates an embodiment of the present invention. There is no question as to which figures are considered within the scope of the present invention. The specification references the drawings throughout. For example, page 23 alone of the specification references each figure embodying the present invention.

> Line 1: "FIGS. 4 and 5 illustrate a specific embodiment of the present invention..."
>
> Lines 13 – 14: "With reference to FIG. 15, the top surface 105 ... may be used to contact solid particles..."
>
> Lines 15 – 16: "Irregularly shaped top and bottom surfaces 105, 107 (FIG. 16) may augment this process.
>
> Lines 18 – 20: "Other cross-sectional configurations used for the ceramic filter units may include triangles 94 (FIG. 6), quadrilaterals 96 (FIG. 7), pentagons 104 (FIG. 8), hexagons 110 (FIG. 9), heptagons 100 (FIG. 10), octagons 106 (FIG. 11), ellipses 92 (FIG. 12), and squares 90 (FIG. 13), ..."

Numerous additional references to the drawings have been made throughout the corresponding specification. In the present application, there is no need to try to determine which of the embodiments are within the scope of the present invention.

In *Purdue Pharma*, importantly, there was no mention of the ratio of Cmax/C24 at all in the specification. Purdue was arguing that support for the addition of the ratio was found in the examples. Nowhere within the specification did Purdue refer to the examples as providing the ratio Cmax/C24. Nor did Purdue indicate which of the examples actually had a ratio of Cmax/C24 greater than two. The ratio was never disclosed. Readers would have to calculate it based upon the data provided in the examples.

Here, the drawings clearly show three or more openings in each and every figure. There is no need to calculate anything or try to determine which figures embody the present invention and which do not. All of the figures are considered within the scope of the present invention. The Examiner indicated that claiming a central opening was likely required to distinguish from the Hung prior art reference. Applicant has complied with this request without prejudice to further this case.

The Examiner also relied upon *Waldemer Link GmbH & Co. v. Osteonics Corp.*, 32 F.3d 556,558 31 U.S.P.Q.2d 1855, 1857 (Fed. Cir. 1994), which based its decision upon *In re Ruschig*, 379 F.2D 990, 154 U.S.P.Q. 118 (CCPA 1967). In *Ruschig*, which is also a chemical case, the general disclosure encompassed roughly one-half of a million possible compounds. The applicant argued that the specification provided certain "guides" in the specification that would lead one skilled in the art to the compound of the disputed claim 13. "Specific claims to single compounds require reasonably specific supporting disclosure ... naming is not essential, something more than the disclosure of a class of 1000, or 100, or even 48, compounds is required." *Ruschig*, 154 U.S.P.Q. 118, 122. The court analogized the situation to marking trails by making blaze marks on the trees. "Appellants are pointing to trees. We are looking for blaze marks which single out particular trees." *Id.* In *Ruschig*, the specific compound at issue was never specifically mentioned in the specification and the Ruschig applicant even admitted this. A number of other specific compounds were specifically disclosed within the application, but not the compound at issue.

Applicant submits that each figure in its application is a blazed marked tree. Each figure is to be considered within the scope of the present invention. There is no need to try to determine which figures are covered and which are not. Each figure embodies various features of the claimed invention.

35 U.S.C. §112, Second Paragraph Rejection

Claims 46 – 48 and 51 – 58 were rejected under the provisions of 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly

claim the subject matter that applicant regards as the invention. These claims have been cancelled and replaced with new claims as described herein.

The dimensions of the filter ceramic units have been changed back to the same dimensional ranges specified in the patent application. In light of the telephonic conference and the substantially amended claims, Applicant respectfully submits that the basis for the 35 U.S.C. §112, Second Paragraph rejections have been removed.

35 U.S.C. §102 (b) Rejection

Claims 46 – 48 and 51 – 58 were rejected under the provisions of 35 U.S.C. § 103(a) as being unpatentable over German patent document DE 35 39 195 to Hung, et al (hereafter the "Hung Patent"). These claims have been cancelled and replaced with new claims as described herein.

As acknowledged by the Examiner during the recent interview, Applicant respectfully submits that the new claims make the present invention patentably distinguishable from the Hung reference, thereby removing any basis for these rejections.

SUMMARY

The claims have been substantially amended to distinguish the present invention from the Hung reference. Adequate support for the amended claims can be found in the drawings and throughout the specification.

In commenting upon the references and in order to facilitate a better understanding of the differences that are expressed in the claims, certain details of distinction between the references and the present invention have been mentioned, even though such differences do not appear in all of the claims. It is not intended by mentioning any such unclaimed distinctions to create any implied limitations in the claims. Not all of the distinctions between the prior art and Applicant's present invention have been made by Applicant. For the foregoing reasons, Applicant reserves

the right to submit additional evidence showing the distinctions between Applicant's invention to be novel and nonobvious in view of the prior art.

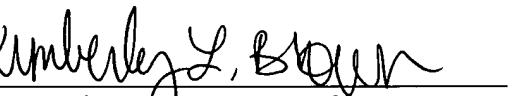
The foregoing remarks are intended to assist the Examiner in re-examining the application and in the course of explanation may employ shortened or more specific or variant descriptions of some of the claim language. Such descriptions are not intended to limit the scope of the claims; the actual claim language should be considered in each case. Furthermore, the remarks are not to be considered to be exhaustive of the facets of the invention that render it patentable, being only examples of certain advantageous features and differences which Applicant's attorney chooses to mention at this time.

Reconsideration of the application, as amended, and allowance of all of the claims are respectfully requested.

In view of the foregoing Amendment, Applicant respectfully submits that Claims 59, 67 and 78 and all of the claims dependent thereon are allowable, and Applicant respectfully requests the issuance of a Notice of Allowance.

Respectfully submitted,

Date: October 23, 2002



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MARKED UP VERSION SHOWING CHANGES

Please cancel claims 46 – 58.

Please add claims 59 – 78 as follows.

59. A method of fluid distribution in a chemical reactor comprising the steps of:

providing a layer of a plurality of ceramic filter units, each of the ceramic filter units including a body having a substantially annular outer peripheral shape, a central opening extending through the body, and at least three openings also extending through the body and positioned between the central opening and an outer periphery of the body so that a combination of the central opening and the at least three openings define a plurality of fluid flow passageways extending through each of the plurality of ceramic filter units;

contacting an organic-based feed stream with the layer of the plurality of ceramic filter units; and

subdividing the organic-based feed stream into a plurality of smaller fluid streams by passing the organic-based feed stream through the plurality of fluid flow passageways prior to the organic-based feed stream contacting a catalyst bed in the chemical reactor.

60. A method as defined in claim 59, wherein at least one of the at least three openings comprise an ellipse.

61. A method as defined in claim 59, further including the steps of: removing contaminants from a contaminated organic-based feed stream; and providing a decontaminated and uniformly spread organic-based feed stream to a catalyst bed for further processing in the chemical reactor.

62. A method as defined in claim 59, including the step of packing the ceramic filter units into the chemical reactor with a packing factor of about 200 to 500 ft^2/ft^3.

63. A method as defined in claim 59, including the step of packing the ceramic filter units in graduated layers into the chemical reactor with each layer having a different packing factor of about 200 to 500 ft^2/ft^3.

64. A method as defined in claim 59, wherein the body of at least one of the plurality of ceramic filter units has a fluted outer peripheral surface.

65. A method as defined in claim 59, wherein the outer peripheral includes a plurality of recessed notches extending inwardly from the outer periphery towards the medial portion of the ceramic filter unit.

66. A method as defined in claim 59, wherein the at least three openings substantially surround the central opening between the central opening and the outer periphery to thereby define a ring around the central opening.

67. A method of fluid distribution in a chemical reactor comprising the steps of:

providing a layer of a plurality of ceramic filter units, each of the ceramic filter units including a body having a substantially polygonal outer peripheral shape, a central opening extending through the body, and at least three openings also extending through the body and positioned between the central opening and an outer periphery of the body so that a combination of the central opening and the at least three openings define a plurality of fluid flow passageways extending through each of the plurality of ceramic filter units;

contacting an organic-based feed stream with the layer of the plurality of ceramic filter units; and

subdividing the organic-based feed stream into a plurality of smaller fluid streams by passing the organic-based feed stream through the plurality of fluid flow passageways prior to the organic-based feed stream contacting a catalyst bed in the chemical reactor.

68. A method as defined in claim 67, wherein at least one of the at least three openings comprise an ellipse.

69. A method as defined in claim 67, further including the steps of: removing contaminants from a contaminated organic-based feed stream; and providing a decontaminated and uniformly spread organic-based feed stream to a catalyst bed for further processing in the chemical reactor.

70. A method as defined in claim 67, wherein the outer peripheral includes a plurality of notches recessed from the outer peripheral towards the medial portion of the ceramic filter unit.

71. A method as defined in claim 67, including a step of utilizing ceramic filter units wherein the outer periphery has a polygonal shape with a length of about ⅛ inches to about 3 inches.

72. A method as defined in claim 67, wherein the body of at least one of the plurality of ceramic filter units has a substantially polygonal shape selected from the group consisting of triangles, quadrilaterals, squares, rectangles, pentagons, hexagons, heptagons, and octagons.

73. A method as defined in claim 67, wherein the body of at least one of the plurality of ceramic filter units has a square shape with a width of about ¼ inches to about 3 inches.

74. A method as defined in claim 67, wherein the body of at least one of the plurality of ceramic filter units has a rectangular shape with a length of about ¼ inches to about 3 inches and a width of about ¼ inches to about 3 inches.

75. A method as defined in claim 67, wherein the body of at least one of the plurality of ceramic filter units has a closed-planed shape with a width of about ¼ inches to about 3 inches.

76. A method as defined in claim 67, wherein the outer peripheral includes a plurality of recessed notches extending inwardly from the outer periphery towards the medial portion of the ceramic filter unit.

77. A method as defined in claim 67, wherein the at least three openings substantially surround the central opening between the central opening and the outer periphery to thereby define a ring around the central opening.

78. A method of fluid distribution in a chemical reactor comprising the steps of:

providing a layer of a plurality of ceramic filter units, each of the ceramic filter units including a body, a central opening extending through the body, and at least three openings also extending through the body and positioned between the central opening and an outer periphery of the body so that a combination of the central opening and the at least three openings define a plurality of fluid flow passageways extending through each of the plurality of ceramic filter units;

contacting an organic-based feed stream with the layer of the plurality of ceramic filter units; and

subdividing the organic-based feed stream into a plurality of smaller fluid streams by passing the organic-based feed stream through the plurality of fluid flow passageways prior to the organic-based feed stream contacting a catalyst bed in the chemical reactor.